Massachusetts Department of Public Health (MDPH)
Division of Epidemiology and Immunization

Control of Influenza and Pneumococcal Disease In Long Term Care Facilities

2007 - 2008

Key Influenza Recommendations for 2007 - 2008

- Vaccinate all residents against influenza. Ensure that all residents have received one dose of pneumococcal vaccine; 2 doses if the first dose was before their 65th birthday.

> The Centers for Medicaid and Medicare Services (CMS) require nursing homes to offer all residents influenza and pneumococcal vaccines and to document the results. Each resident is to be vaccinated unless medically contraindicated, the resident or legal representative refuses or there is a vaccine shortage.

- Use only oseltamivir or zanamivir for the treatment and prophylaxis of influenza.

New Regulation for the 2007 – 2008 Influenza Season

A new regulation [105 CMR 150.002(D)(8)] requires that long-term care facilities (LTCF):

- Provide every employee with information about the risks and benefits of influenza vaccine;
- Offer influenza vaccine to every employee no later than December 15. All employees should be vaccinated unless the vaccine is medically contraindicated; vaccination is against the employee's religious beliefs; or the employee refuses the vaccine.
- Provide or arrange for the vaccination of employees hired between December and April 1 who cannot provide proof of current immunization against influenza, within two weeks of the employee commencing employment.
- Require employees who do not get vaccinated to sign a statement certifying that he or she received information about the risks and benefits of influenza vaccine. A sample Declination of Influenza Vaccination form is found at http://www.immunize.org/catg.d/p4068.pdf .
- Maintain in each employee's personnel file a certificate of immunization for annual influenza vaccination or a signed declination statement. The MDPH Adult Vaccine Documentation Record can be found at http://www.mass.gov/dph/cdc/epii/imm/imm_records/adultvac_rec.htm.
- Maintain a central system to track the vaccination status of every employee.

For more information about this regulation, see the MDPH Circular Letter: DHCQ 06-11-468 at www.mass.gov/Eeohhs2/docs/dph/quality/hcq_circular_letters/ltc_facilities_0611468.pdf.

Every flu season up to 25% of all health care workers are infected with influenza. Influenza is often introduced into and spread throughout a facility by staff or visitors. Influenza vaccine may be less effective in the very elderly and, although immunized, some LTC residents may remain susceptible to influenza. It is therefore important to reduce their exposure to the disease. Influenza vaccination of all staff in LTC facilities reduces mortality in elderly patients.

Influenza vaccination of health care workers protects the health care workers, their patients and their families, enhancing patient and worker safety.

An updated *Employee Immunization Campaign Toolkit* is available online at www.massmed.org/AM/Template.cfm?Section=Flu, or by calling 781-419-2749.

NEW!

Plan to purchase influenza vaccine for employees: Although state-supplied influenza vaccine is available for residents of LTCFs, it should not be used to vaccinate employees. Plan to purchase influenza vaccine from your pharmaceutical distributors or the manufacturers listed in the following table. The National Vaccine Influenza Summit maintains a list of distributors with flu vaccine for sale, which will be updated every other week throughout the season. To access this information, go to: www.ama-assn.org/ama/pub/category/16919.html#InfoHCP.

Approved Influenza Vaccines

Trade Name	Manufacturer	Dose/ Presentation	Thimerosal Content (mcg Hg/0.5 mL dose)	Age Group
Fluzone® Inactivated	sanofi pasteur 800-822-2463	0.25 mL prefilled syringe	0	6 – 35 mos
		0.5 mL prefilled syringe	0	≥ 36 mos
		0.5 mL vial	0	≥ 36 mos
		5.0 mL multidose vial	25	≥ 6 mos
Fluvirin® Inactivated	Novartis 800-244-7668	0.5 mL prefilled syringe	< 1.0	≥ 4 yrs
		5.0 mL multidose vial	24.5	≥ 4 yrs
Fluarix®, Inactivated	GlaxoSmithKline 866-475-8222	0.5 mL prefilled syringe	< 1.0	≥ 18 yrs
FluLuval®, Inactivated		5.0 mL multidose vial	25	≥ 18 yrs
FluMist® Live attenuated intranasal	MedImmune 877-358-6478	0.2 mL sprayer	0	5 – 49 yrs

Availability of State-Supplied Influenza Vaccine for LTC Residents: Long-term care facilities are a top priority for state-supplied influenza vaccine for their residents. However, unused doses of state-supplied influenza vaccine cost thousands of dollars and threaten the viability of the MDPH vaccine program. In order to reduce unused vaccine, return unused state-supplied vaccine to the MDPH Regional Health Offices as soon as possible for redistribution.

State-supplied Pneumococcal (PPV23) and Tetanus/diphtheria (Td) Vaccines: MDPH provides PPV23 and Td for all Massachusetts residents for whom these vaccines are recommended, including all residents of LTC facilities and those employees with medical conditions that put them at risk for pneumococcal disease. To order state-supplied PPV23 or Td, contact your local vaccine distributor or the MDPH Regional Office (see enclosed list).

Influenza Prevention and Control Measures

Strategies for the prevention and control of influenza in long-term care facilities include:

- Annual influenza vaccination of all residents and health-care personnel
- Standard and Droplet Precautions with suspect or confirmed influenza cases

- Active surveillance and influenza testing for new illness cases
- Restriction of ill visitors and personnel
- Administration of antiviral medications for prophylaxis and treatment
- Other prevention strategies, such as respiratory hygiene/cough etiquette programs

I. Prevention Measures

A. Vaccination

1. **Vaccination of Residents:** Use a systematic approach to vaccination, with checklists, to increase immunization levels:
   - Vaccinate residents against influenza in October. Vaccinate residents admitted from October through March on admission.
   - Review the facility's immunization policies every year. Ensure that the written policy includes annual influenza vaccination for all residents and staff, and pneumococcal polysaccharide vaccine (PPV23) and Td vaccination for residents.
   - Include Vaccine Information Statements (VIS) for pneumococcal, Td and influenza vaccines in the admission packet. VISs in many languages are available online at www.immunize.org/vis and from MDPH. Obtain consent for vaccination from the resident or a family member on admission.
   - Implement standing orders for administration of flu, pneumococcal and Td vaccines.
   - Influenza, PPV23 and Td vaccines are safe and effective when administered simultaneously in separate syringes at different anatomical sites.
   - Chart audits should ensure that there is documentation in every chart that the resident has been offered PPV23 and Td vaccines and annual influenza vaccine.

   Pneumococcal polysaccharide vaccine (PPV23): Pneumococcal pneumonia is the most common nursing home-acquired pneumonia. The case fatality rate is 5-7% and may be much higher in elderly persons. Pneumonia is the primary reason LTC residents require hospitalization. Increasing antimicrobial resistance complicates treatment of pneumococcal disease. PPV23 protects against pneumococcal meningitis and bacteremic pneumococcal pneumonia, a complication of influenza.

   Administer PPV23 to all unvaccinated residents $\geq$ 2 years of age on admission. Administer a second dose to previously vaccinated residents who are $\geq$ 65 years of age if it has been $\geq$ 5 years since their first dose and they were < 65 years of age when they received the first dose. Local reactions at the injection site may follow both first PPV23 vaccination and revaccination. These reactions are self-limiting and are not a contraindication to vaccination.

   Td vaccine: Fewer than 50% of adults in the U.S. have received Td vaccine within 10 years and are therefore protected against tetanus and diphtheria. More than 50% of all tetanus cases in the U.S. are people $\geq$ 60 years of age; one fourth of these are associated with chronic wounds, such as decubiti. Administer Td on admission to all residents without immunization records, and to those for whom it has been $\geq$ 10 years since their last dose.

Consider residents with uncertain immunization histories NOT immunized and vaccinate accordingly. The benefits of vaccination far outweigh any concerns about revaccination.

Updated!

Medicare Reimbursement for Administration of Influenza and Pneumococcal Vaccines: Medicare reimburses both for the cost of influenza and pneumococcal vaccines and for administration of the vaccines. Reimbursement for administration of vaccine has increased to $23.82/dose in metro-Boston and $20.69 in the rest of the state. For more information, go to http://www.cms.hhs.gov/AdultImmunizations/ or call Elizabeth Donovan at 617-886-8081.

2. **Vaccination of Employees:** LTCFs may use state-supplied pneumococcal vaccine to vaccinate employees and volunteers who themselves have medical conditions that put them at risk for pneumococcal disease (chronic cardiac or pulmonary disease, diabetes, etc.) or who are $\geq$ 65 years of age.
3. **Vaccination of Family Members and Visitors:** Inform family members and other visitors about their role in the transmission of influenza to patients and encourage them to receive influenza vaccine. To find out where to get flu vaccine, they can call their health care provider or local board of health, visit the MassPRO website at http://flu.masspro.org for a list of flu vaccination clinics by town, or call Department of Public Health at 617-983-6800.

II. Infection Control Measures

The outbreak control measures described below should be promptly implemented in the event of any one of the following:

- Influenza is confirmed by laboratory testing in at least one resident
- More than one resident in the facility or an area of the facility (e.g., separate unit) develops influenza-like illness (ILI) during a 1-week period.

ILI is defined as fever $\geq$ 100^{o} F with cough and/or sore throat, in the absence of a known cause.

A. Surveillance for Influenza at Your Facility

Facilities should establish a surveillance system to identify any increased incidence of ILI among patients. Educate personnel about the signs and symptoms of influenza and indications for obtaining influenza testing. Other symptoms may include myalgia, headache or weakness. A cluster is defined as three or more cases of ILI occurring within 48 to 72 hours, in residents who are in close proximity to each other (e.g., in the same area of the facility). **An outbreak is defined as a sudden increase of ILI cases over the normal background rate. However, one case of influenza confirmed by any laboratory testing method in a LTC facility resident is also considered an outbreak.**

It is important to collect information about the location (wing, floor, unit, room); group activities; immunization history; predisposing factors; dates of onset; symptoms; complications (including pneumonia, hospitalization and death); pertinent diagnostic tests (including cultures, rapid tests, other laboratory tests and x-rays); and any antibiotics/antiviral agents administered. These data will be important in the development and targeting of your outbreak control strategy.

An *Influenza-Like Illness (ILI) Line Listing* has been attached for systematic collection of data in the event of ILI among patients or staff. Implement daily active surveillance for respiratory illness among all residents and health care personnel until at least 1 week after the last confirmed influenza case occurred.

Any sudden increase in absenteeism or illness among staff also warrants an investigation. Remind employees to notify their employee health service if they are experiencing febrile respiratory symptoms and exclude them from direct patient care for 5 days following onset of symptoms, when possible.

B. Notification

An immunization epidemiologist at MDPH should be notified within 24 hours at 617-983-6800 or 888-658-2850 when:

- Influenza is diagnosed with laboratory confirmation in at least one resident, or
- Three or more cases of ILI occur within 48 to 72 hours, in residents who are in close proximity to each other (e.g., in the same area of the facility), or
- There is an outbreak (e.g., a sudden increase of ILI cases over the normal background rate and/or one case of influenza confirmed by any laboratory testing method in a LTC facility resident).

All outbreaks should also be reported to:

- The MDPH Division of Health Care Quality at 800-462-5540 (Accident/Incident line) within 24 hours of outbreak recognition
- Your local board of health

Advise all visitors and employees of influenza activity in the facility, through signage and other means. When transfers occur, notify the receiving facility of the influenza activity.

C. Specimen Testing

In addition to influenza surveillance, diagnostic testing for influenza can aid clinical judgment and guide treatment decisions. The accuracy of clinical diagnosis of influenza based on symptoms alone is limited because symptoms from illness caused by other pathogens (e.g., parainfluenza viruses, respiratory syncytial virus [RSV], adenovirus and *Mycoplasma pneumoniae*) can overlap considerably with influenza. Diagnostic tests for influenza and RSV performed at the State Laboratory Institute (SLI) include viral culture and rapid antigen testing. For general information on influenza testing, visit the CDC website at http://www.cdc.gov/flu/professionals/labdiagnosis.htm.

Influenza testing

- **Virus isolation:** Kits for specimen collection can be ordered by calling MDPH at 617-983-6800. These kits include full instructions and throat and NP swabs. The kits should be kept frozen until used. It is recommended that NP swabs be used for all specimen collection because there is better recovery of virus and it allows testing for multiple agents (influenza, parainfluenza, adenovirus and RSV) and no special technique other than that normally used for cultures is required to obtain a suitable specimen for an influenza culture. However, there may be instances where collecting a specimen with the NP swab is not feasible and, therefore, a throat swab is included in each kit. Only one swab should be taken.

The NP swab (included in the kit) should be bent in to a gentle curve and inserted into the anterior nares until it reaches the posterior nasopharynx, which should be gently swabbed. Complete instructions for obtaining and transporting specimens are included in the kits, but may be also found on the MDPH website at http://www.mass.gov/dph/cdc/epii/flu/fluprov_testing_methods.htm.

Swab specimens should be obtained as soon as possible, and no later than 48 hours after symptom onset. In the event of an outbreak, specimens should be obtained from 3 - 4 patients with the most recent onset of symptoms.

Collect and send culture specimens, with a completed Specimen Submission Form (included), to the State Laboratory Institute (SLI) Virus Isolation Laboratory. Mail specimens as soon as possible, preferably on a Monday or Tuesday. If an influenza culture specimen is to be shipped on a Wednesday, Thursday or Friday, please call an MDPH immunization epidemiologist at 617-983-6800 to arrange for submission via courier. Timely transport of specimens to SLI is critical for virus recovery, as specimens received more than 3 days after collection are unsuitable for testing.

- **Rapid detection by viral culture:** Rapid detection is helpful for making decisions about the use of antiviral agents. Upon receipt of a swab specimen, the SLI routinely uses a rapid viral culture technique. If influenza A or B is present, a presumptive diagnosis may be available within 24 - 48 hours. The SLI will notify the submitting facility if a presumptive positive diagnosis is made. A confirmatory diagnosis, using traditional culture methods, will follow the presumptive diagnosis and should be available 4 - 12 days after receipt of the clinical specimens.
- **Rapid antigen testing:** Rapid antigen testing is also available at some commercial laboratories, emergency departments and in some provider offices. These rapid tests differ in the types of influenza virus they can detect and whether or not they can distinguish between types A and B. Due to the lower sensitivity (i.e., false negatives) of the rapid tests, clinicians should consider confirming negative tests with viral culture or other means (i.e., PCR). Despite the availability of rapid antigen testing, the collection of clinical specimens for viral culture is critical, because only culture isolates can provide specific information on circulating influenza subtypes and strains. Package inserts and the laboratory performing the test should be consulted for more detail.

RSV, parainfluenza and adenovirus diagnostic testing

- **Virus Isolation:** To optimize recovery of virus, an NP swab specimen (not a throat swab specimen) should be collected at the acute onset of illness or within 48 hours. Fever does not have to be present at the time of specimen collection. See the instructions above for influenza viral isolation. To order testing for influenza, as well as RSV, parainfluenza and adenovirus all from the same NP swab, please submit the Specimen Submission Form with the words “Respiratory Panel” written in Box #5 and contact the MDPH immunization epidemiologist to arrange for specimen submission at 617-983-6800. Timely transport of specimens to SLI is critical for virus recovery, as specimens received more than 3 days after collection are unsuitable for testing.

***Mycoplasma pneumoniae* diagnostic testing**

- SLI offers an IgM ELISA test on serum for *M. pneumoniae.* Serum specimens may be submitted at the same time as the throat and NP swabs for respiratory panel testing. The minimum amount of serum required for *M. pneumoniae* testing is 2 ml. Serum specimens should be obtained no later than one week after symptom onset. Serum should be collected in a serum-separator tube (SST); red-top tubes are also acceptable. A separate (second) Specimen Submission Form should be completed for *M. pneumoniae* testing with the words "*Mycoplasma pneumoniae*" written in box #5 for the test requested. Please note that hemolyzed, excessively lipaemic or microbially contaminated sera should not be submitted for testing as they may yield erroneous results.

D. Vaccination during an Outbreak

It is important to have a system to be able to readily identify unvaccinated residents and staff. Review the immunization status of residents and staff and immunize all unvaccinated residents and staff with influenza vaccine as soon as possible. Because pneumococcal disease is a most common complication of influenza, take this opportunity to immunize unvaccinated residents with pneumococcal (PPV23) vaccine as well.

E. Antiviral Agents

Antiviral drugs should not be used as a substitute for vaccination. Antiviral drugs, however, can be used as an adjunct to immunization for prophylaxis and control of influenza. There are currently 4 licensed influenza antiviral agents available in the U.S.: amantadine, rimantadine, zanamivir, and oseltamivir.

NEW Due to antiviral resistance testing at CDC and in Canada, which indicates high levels of resistance, **ACIP recommends that neither amantadine nor rimantadine be used for the treatment or chemoprophylaxis of influenza A in the United States** until susceptibility to these antiviral medications has been re-established among circulating influenza A viruses.

Both oseltamivir and zanamivir are approved for treatment and prophylaxis of influenza A and B; oseltamivir may be used for treatment or prophylaxis in those ≥1 year of age, and zanamivir may be used for treatment in those ≥7 years of age and for prophylaxis in those ≥5 years of age.

Dosage recommendations vary by age group and medical condition. For more information about the use of antiviral medications in the control of influenza, visit the CDC website on antivirals at: http://www.cdc.gov/flu/professionals/treatment/ and consult the package inserts.

When antiviral agents are used for outbreak control, they should be administered to all residents (include all employees if variant strain is found that is not well matched to vaccine), regardless of immunization status. The drugs should be continued for 2 weeks after all residents and staff have been vaccinated and as long as one week after the last resident case occurred. The antiviral dose for each resident is determined based on age, renal function, liver function and other pertinent characteristics. If there is a variant strain or unusual circumstances occurring during a season, MDPH will issue appropriate bulletins and advisories.

Pre-approved medication orders, or plans to obtain physician's orders on short notice, should be in place to ensure that chemoprophylaxis can be started as soon as possible.

F. Respiratory Hygiene/Cough Etiquette Programs

Respiratory hygiene/cough etiquette should be implemented whenever residents or visitors have

symptoms of respiratory infection to prevent the transmission of respiratory infections in LTC facilities. Tools to assist with promoting and implementing these recommendations are available at www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm.

- Post visual alerts instructing residents and persons who accompany them to inform health care personnel if they have symptoms of respiratory infection and discourage those who are ill from visiting the facility.
- Provide tissues or masks to residents and visitors who are coughing or sneezing so that they can cover their mouth and nose.
- Ensure that supplies for handwashing are available where sinks are located and provide dispensers of alcohol-based hand rubs in other locations. For materials to promote handwashing, visit http://www.mass.gov/dph/cdc/handwashing/hw.htm.
- Encourage persons who are coughing to sit $\geq$ 3 feet away from others, if possible. Discourage residents with respiratory symptoms from using common areas when feasible.

G. Standard Precautions (http://www.cdc.gov/ncidod/hip/ISOLAT/std_prec_excerpt.htm)

During the care of any resident with symptoms of a respiratory infection, health care personnel should adhere to standard precautions:

- Wear gloves if hand contact with respiratory secretions or potentially contaminated surfaces is anticipated.
- Wear a gown if soiling of clothes with a resident's respiratory secretions is anticipated.
- Change gloves and gowns after each resident encounter and perform hand hygiene.
- Decontaminate hands before and after touching the resident, the resident's respiratory secretions or the resident's environment or after touching, whether or not gloves are worn.
- When hands are visibly soiled or contaminated with respiratory secretions, wash hands with soap (either plain or antimicrobial) and water.
- If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands. Alternatively, wash hands with soap (either plain or antimicrobial) and water.

H. Droplet Precautions (http://www.cdc.gov/ncidod/hip/ISOLAT/droplet_prec_excerpt.htm)

In addition to standard precautions, health care workers should adhere to expanded droplet precautions during the care of a resident with suspected or confirmed influenza:

- Place resident into a private room. If a private room is not available, place (cohort) suspected influenza residents with other residents suspected of having influenza; cohort confirmed influenza residents with other residents confirmed to have influenza.
- Wear a surgical or procedure mask upon entering the resident's room or when working within 3 feet of the resident. Remove the mask when leaving the resident's room and dispose of the mask in a waste container.
- If resident movement or transport is necessary, have the resident wear a surgical or procedure mask, if possible.

I. Restrictions for Ill Visitors and Employees

If no or only sporadic influenza activity is in the surrounding community:

- Discourage persons with symptoms of a respiratory infection from visiting residents. Implement this measure through educational activities.
- Monitor health care personnel for symptoms of respiratory illness and consider removing those with symptoms from duties that involve direct resident contact. If excluded, they should not provide resident care for 5 days after the onset of symptoms.
- Monitor residents for symptoms of respiratory illness.

If widespread influenza activity is occurring in the surrounding community:

- Actively communicate to the public at large and visitors (e.g., via posted notices) that adults with respiratory symptoms should not visit the facility for 5 days and children with symptoms for 7 days following the onset of illness.
- Actively screen unvaccinated health care personnel for symptoms of respiratory infection and exclude those with symptoms for 5 days following the onset of symptoms.
- Monitor residents for symptoms of respiratory illness to determine need for precautions.

J. Other Considerations

In addition to standard and droplet precautions, consider the following procedures:

- Limiting visitors and restricting new admissions.
- To maintain the residents' ability to socialize and access rehabilitation services when influenza infections are unlikely and no influenza is suspected or confirmed, permit residents with respiratory symptoms to participate in group activities if they can be placed > 3 feet from other residents and can perform respiratory hygiene/cough etiquette.
- If influenza is suspected in any resident, influenza testing should be done promptly. Confine symptomatic residents with suspected or confirmed influenza to their rooms or group them together in rooms or on one unit (i.e., cohort) for 5 days following the onset of symptoms. Personnel should work on only one unit, if possible.
- Patients receiving antiviral treatment for influenza should continue to be confined until treatment is completed to prevent the spread of antiviral resistant influenza viruses.

Additional Information

CDC. Prevention and control of influenza: recommendations of the ACIP. MMWR 2007;56(No. RR-6):1-54. http://www.cdc.gov/mmwr/PDF/rr/rr5606.pdf.

CDC. Influenza vaccination of health-care personnel: recommendations of the Healthcare Infection Control Practices Advisory (HICPAC) and the Advisory Committee on Immunization Practices (ACIP) 2006:55(No. RR-2). http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm.

CDC. Prevention of pneumococcal disease: recommendations of the ACIP. MMWR 1997;46 (No. RR-8). http://www.cdc.gov/mmwr/preview/mmwrhtml/00047135.htm

Vaccine Information Statements (VISs) for all vaccines in many languages: www.immunize.org/vis.

Visit the MDPH web site www.mass.gov/dph/flu. Hard copies and technical consultation are available from your MDPH Regional Office or by calling MDPH at 617-983-6800 or 888-658-2850.

INFLUENZA-LIKE ILLNESS (ILI)
LINE LIST

Facility Name:_____

Date: _____

	Name	Patient (P) or Staff (S)	Age	Wing/ Unit	Flu Vax?	Pneumo Vax?	Date of Onset	Symptoms (check box)								CXR? Findings?	Hospitalized?	Died?	Flu Dx test and result	Other tests and results	Anti-viral?
								Fever (temp)	Cough	Sore throat	URI	Muscle Aches	Weakness	Vomiting	Diarrhea						
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